Railroad at forefront of clean air effort

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Karen Caffarini 5/18/2017

Hammond-based Indiana Harbor Belt Railroad is on track to becoming one of the first freight railroads in the nation to convert its locomotives to compressed natural gas as their primary fuel, resulting in improved air quality for the area and eventual cost savings to the railroad.

Michael Nicoletti, IHB director of mechanical operations, said two of the railroad's locomotives are now in the process of being converted to 56 percent CNG and 44 percent diesel, and 29 others should be converted to the dual fuels by 2020.

"You need to use both fuels or the locomotives won't work," he said.

Nicoletti said the $59 million project, which includes the construction of a CNG fuel station at the railroad's north Hammond site and repowering of the locomotives, is partially funded through a $34.25 million federal Congestion Mitigation and Air Quality Improvement grant, awarded through the Chicago Metropolitan Agency for Planning.

The grant is awarded to help fund surface transportation projects designed to improve air quality and mitigate congestion.

"This is the largest grant we've done for a railroad and as far as I know, this is the only railroad in the country going to mostly CNG fuel," said Ross Patronsky, principal planner with CMAP.

Carl Lisek, executive director of South Shore Clean Cities, called the move by Indiana Harbor Belt one of the first of its kind in the U.S.

"There have been other CNG locomotives, but they were more for tourism purposes. This is the first time CNG is used for freight trains," Lisek said.

"I see this as making a huge impact for air quality and for reducing the independence on foreign oil," Lisek added.

Nicoletti said the transformation will enable the railroad to decrease its nitrogen oxide emissions by 85.3 percent and its particulate matter emissions by 94.7 percent. This will take the railroad from non-tier compliance to Tier 4, the top tier for the industry, Nicoletti said.

Patronsky said IHB's locomotives were built in the 1960s, when there were very old standards for emissions. Over the years, newer and stricter standards, or tiers, were set by the U.S. Environmental Protection Agency, with the newest and strictest standard, Tier 4, set in 2015, he said.

"Any new locomotive built after 2015 must meet Tier 4 standards. Indiana Harbor Belt Railroad is choosing to upgrade to the highest standard on their own," Patronsky said.

He said the railroad's action will reduce emissions and significantly improve air quality in the area since it switches its engines in the relatively confined space of the rail yard and travels a fairly short distance.

The railroad hauls steel, grain and automotive parts as far as O'Hare Airport and operates the largest terminal switching yard in North America. It has about 700 employees, according to Nicoletti.

"The emissions do disperse over time, but they are emitted in a relatively small area so people living near the yard will likely see their air quality improve," Patronsky said.

"I've worked with a number of other railroads over the last 10 to 12 years, but no other railroad has reduced

emissions this dramatically,"Patronsky said. "The others are still using all diesel fuel."

Nicoletti said IHB officials began looking at their options several years ago, knowing that their locomotives, which were last rebuilt around 2002-2004, would need to be rebuilt once again.

"We got the idea of going to alternative fuels. They've been used on other types of transit for decades.We felt it was the natural thing to do," he said.

"For us, this is a good business plan," Nicoletti said.

He said the railroad will see a cost savings both as a result of cleaner engines through modern technology and in the lower price for CNG fuel as compared to diesel.

Nicoletti said the first two locomotives are being stripped to their frame and rebuilt at American Motive Power in Dansville, N.Y., with a Caterpillar C18 engine and 11 CNG cylinders at the back of the locomotive. He said one of the newly repowered locomotives will hopefully be ready by the end of June and the second about two weeks after that.

In the meantime, work has started on construction of the fueling station, which will allow two locomotives to be fueled at once, Nicoletti said.

"We'll be able to go seven to 10 days without refueling," Nicoletti said.

Nicoletti said one of the most complex issues in the process was finding companies that could bring the railroad the solutions it needed in its endeavor.

"We looked at a lot of technologies and options and how we could make the puzzle fit," he said.

Nicoletti said the railroad began talking to Northern Indiana Public Service Co. three years ago about ways to fuel the locomotives and discovered the Merrillville-based utility has a 30-inch CNG pipeline on the IHB propety.

NIPSCO engineers confirmed they are helping the Indiana Harbor Belt Railroad with its CNG project by extending the utility's existing gas and electric lines to power the fueling station. They expect to begin work in early June, adding no gas or electric outages are expected during the project.

Nicoletti said OptiFuel Systems of Beaufort, S.C., designed the locomotives' engines and the fuel station. ANGI Energy Systems, of Janesville, Wis., manufactured equipment for the CNG fueling station, according to South Shore Clean Cities. .

Lisek said the team of companies working on the project has 100 years of experience in heavy duty engines and CNG fuel together.

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